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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,157	10/20/2003	Andrew M. Spencer	10013891-1	9457

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INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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TRUONG, THANHNGA B

ART UNIT	PAPER NUMBER
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2135

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/689,157

Applicant(s)

SPENCER, ANDREW M.

Examiner

Thanhnga B. Truong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/20/03

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

1. This action is responsive to the communication filed on October 20, 2003. Claims 1-30 are pending. At this time, claims 1-30 are rejected.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) filed on October 20, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 16, 19-23, and 25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Mihm et al (US 2003/0236983 A1).

a. ***Referring to claim 16:***

i. Mihm teaches a portable memory card, comprising:

(1) a non-volatile memory storage device configured to store one or more encrypted encryption keys and encrypted data (**paragraph 0034 of Mihm**); and

(2) a card controller system coupled to the memory storage device configured to store and retrieve the encrypted encryption keys and the encrypted data from the memory storage device, wherein the encryption keys are encrypted and decrypted using a master encryption key and the data is encrypted and decrypted using the encryption keys (**paragraphs 0034-0035 and claims 7 and 13 of Mihm**).

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b. Referring to claim 19:

i. Mihm further teaches:

(1) wherein the card controller system includes a non-volatile master key memory configured to store the master encryption key **(paragraph 0034 of Mihm)**.

c. Referring to claim 20:

i. Mihm further teaches:

(1) wherein the card controller system includes an encryption and decryption engine configured to store one or more encryption algorithms and use the encryption algorithms to encrypt and decrypt the encryption keys using the master encryption key and encrypt and decrypt the data using the encryption keys **(paragraphs 0035-0037 of Mihm)**.

d. Referring to claim 21:

i. Mihm further teaches:

(1) wherein the memory storage device is partitioned into first and second areas, and wherein the encrypted encryption keys are stored in the first areas and the encrypted data is stored in the second areas **(see element 150 of Figure 1 and paragraph 0034 of Mihm)**.

e. Referring to claims 22-23:

i. These claims have limitations that is similar to those of claim 21, thus they are rejected with the same rationale applied against claim 21 above.

f. Referring to claims 25-28:

i. These claims have limitations that is similar to those of claim 16, thus they are rejected with the same rationale applied against claim 16 above.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-15, 17, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihm et al (US 2003/0236983 A1), and further in view of Fujita (US 6,947,318 B1).

a. Referring to claim 1:

i. Mihm teaches a removable information storage device suitable for use with a host, comprising:

(1) a non-volatile memory configured to store a master encryption key (**paragraph 0034 of Mihm**); and

(2) a non-volatile magnetic memory configured to store encryption keys which have been encrypted using the master encryption key and to store data which has been encrypted using the encryption keys (**paragraph 0034 and claims 7 and 13 of Mihm**).

ii. Although Mihm teaches storage device as shown in paragraph 0034, Mihm is silent on the capability of showing the storage device is a magnetic memory. On the other hand, Fujita teaches a magnetic memory as shown in element 11 of Figure 1 and column 3, line 64 through column 4, line 6 of Fujita.

iii. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to:

(1) have modified the invention of Mihm with the teaching of Fujita to use a magneto-resistive effect element as a storage element (**column 1, lines 15-16 of Fujita**).

iv. The ordinary skilled person would have been motivated to:

(1) have modified the invention of Mihm with the teaching of Fujita to store data in a non-volatile manner by utilizing a magneto-resistive effect have been frequently carried out. One of characteristics of the

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magnetic random access memory lies in that realization of a finer element and higher integration is possible (**column 1, lines 19-23 of Fujita**).

b. Referring to claim 2:

i. Mihm further teaches:

(1) an encryption and decryption engine configured to encrypt and decrypt the encryption keys using the master encryption key and to encrypt and decrypt the data using one or more of the encryption keys (**paragraphs 0035-0037 of Mihm**).

c. Referring to claims 3, 17:

i. The combination of teaching between Mihm and Fujita teaches a removable information storage device suitable for use with a host. Fujita further teaches:

(1) wherein the first non-volatile memory is a magnetic memory (**see element 11 of Figure 1 and column 3, line 64 through column 4, line 6 of Fujita**).

d. Referring to claim 4:

i. The combination of teaching between Mihm and Fujita teaches a removable information storage device suitable for use with a host. Mihm and Fujita further teaches:

(1) wherein the first non-volatile memory is a read-only memory (**see element 150 of Figure 1 of Mihm**) which includes fuse elements (**column 1, lines 43-49 of Fujita**).

e. Referring to claim 5:

i. Mihm further teaches:

(1) wherein the first non-volatile memory is a nitrided read-only memory (**see element 150 of Figure 1 and paragraph 0030 of Mihm**).

f. Referring to claim 6:

i. Mihm further teaches:

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(1) wherein the first non-volatile memory is an erasable programmable read-only memory (**see element 160, which is similar to EPROM, of Figure 1 and paragraph 0030 of Mihm**).

g. Referring to claim 7:

i. Mihm further teaches:

(1) wherein the first non-volatile memory is an electronically erasable programmable read-only memory (**see element 160, which is similar to EPROM, of Figure 1 and paragraph 0030 of Mihm**).

h. Referring to claim 8:

i. Mihm further teaches:

(1) wherein the first non-volatile memory is a flash erasable programmable read-only memory (**see element 160 of Figure 1 and paragraph 0030 of Mihm**).

i. Referring to claim 9:

i. Mihm further teaches:

(1) wherein the first non-volatile memory is a one time programmable read-only memory (**see element 160, which is similar to EPROM, of Figure 1 and paragraph 0030 of Mihm**).

j. Referring to claim 10:

i. The combination of teaching between Mihm and Fujita teaches a removable information storage device suitable for use with a host. Fujita further teaches:

(1) wherein the non-volatile magnetic memory is a magnetic random access memory (**see element 11 of Figure 1 and column 3, line 64 through column 4, line 6 of Fujita**).

k. Referring to claim 11:

i. The combination of teaching between Mihm and Fujita teaches a removable information storage device suitable for use with a host. Mihm and Fujita further teaches:

(1) wherein the second non-volatile memory is partitioned into first and second areas, and wherein the encrypted encryption keys are stored in the first areas and the encrypted data is stored in the second areas (see Figure 1, element 150 of Mihm and column 10, lines 23-27 of Fujita).

l. Referring to claims 12-13:

i. These claims have limitations that is similar to those of claim 11, thus they are rejected with the same rationale applied against claim 11 above.

c. Referring to claim 14:

i. The combination of teaching between Mihm and Fujita teaches a removable information storage device suitable for use with a host. Mihm and Fujita further teaches:

(1) wherein the first areas are located at one or more predetermined address locations within the second non-volatile memory (see Figure 1, element 152 (UID) and paragraph 0034 of Mihm; column 3, line 29 of Fujita).

d. Referring to claim 15:

i. The combination of teaching between Mihm and Fujita teaches a removable information storage device suitable for use with a host. Mihm and Fujita further teaches:

(1) wherein the first areas are located at one or more random address locations within the second non-volatile memory (see Figure 1, element 152 (UID) and paragraph 0034 of Mihm column 3, line 29 of Fujita).

e. Referring to claims 29-30:

i. These claims have limitations that is similar to those of claims 3 and 16, thus they are rejected with the same rationale applied against claims 3 and 16 above.



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7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mihm et al (US 2003/0236983 A1), and further in view of Chow (US 6,745,310).

a. Referring to claim 18:

i. Mihm teaches non-volatile memory as shown in paragraph 0034; however Mihm is silent on the capability of using an atomic resolution storage memory. On the other hand, Chow teaches:

(1) wherein the non-volatile memory is an atomic resolution storage memory (**column 15, lines 54-64 of Chow**).

ii. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to:

(1) have modified the invention of Mihm with the teaching of Chow to provide higher data transfer rates between memory matrix module 110 and non-volatile storage module 130 and/or to provide increased reliability (**column 15, lines 61-64 of Chow**).

iii. The ordinary skilled person would have been motivated to:

(1) have modified the invention of Mihm with the teaching of Chow to provide the highest possible data transfer rates, or in a RAID Level 1 configuration to provide multiple mirrored copies of data in memory matrix module 110 (**column 16, lines 51-53 of Chow**).

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mihm et al (US 2003/0236983 A1), in view of Chow (US 6,745,310), and further in view of Gibson (US 5,557,596).

a. Referring to claim 24:

i. Mihm teaches a memory card, comprising:

(1) a non-volatile master key memory configured to store a master encryption key (**paragraph 0034 of Mihm**);

(2) an encryption and decryption engine configured to implement one or more symmetrical encryption key algorithms

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based on the master encryption key and encryption keys (**paragraphs 0035-0037 of Mihm**);

(3) a memory storage device (**paragraph 0034 of Mihm**) comprising an atomic resolution storage device including a field emitter, a media and a micromover, the atomic resolution storage device configured to store the encryption keys after the encryption keys are encrypted using the master encryption key and to store data after the data is encrypted using the encryption keys;

(4) a host interface configured to provide a communication interface to a host (**paragraph 0029, element 120 of Mihm**);

(5) a memory interface configured to provide a communication interface to the memory storage device (**paragraph 0029 of Mihm**);

(6) a data path manager configured to manage communication of the data and the encrypted data between the host and the memory storage device (**paragraph 0029 of Mihm**); and

(7) a controller processor configured to control the encryption and decryption of the encryption keys using the master encryption key and the encryption and decryption of the data using the encryption keys (**paragraph 0029, element 110 of Mihm**).

ii. Mihm teaches non-volatile memory as shown in paragraph 0034; however Mihm is silent on the capability of using an atomic resolution storage device including a field emitter, a media and a micromover. On the other hand, Chow teaches:

(1) an atomic resolution storage device (**column 15, lines 54-64 of Chow**).

iii. Whereas Gibson teaches:

(1) a storage device including a field emitter, a media and a micromover (**column 2, lines 1-10 of Gibson**).

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iv. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to:

(1) have modified the invention of Mihm with the teaching of Chow to provide higher data transfer rates between memory matrix module 110 and non-volatile storage module 130 and/or to provide increased reliability (**column 15, lines 61-64 of Chow**).

v. The ordinary skilled person would have been motivated to:

(1) have modified the invention of Mihm with the teaching of Chow to provide the highest possible data transfer rates, or in a RAID Level 1 configuration to provide multiple mirrored copies of data in memory matrix module 110 (**column 16, lines 51-53 of Chow**).

#### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Ohtani (US 6,671,213 B2) discloses a thin film magnetic memory device having redundancy repair function (see title).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhnga (Tanya) Truong whose telephone number is 571-272-3858.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached at 571-272-3859. The fax and phone numbers for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

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TBT

February 15, 2007

Chanhng B. B. [Signature]  
AU2135